

We claim:

1. A method of processing radio signals, comprising  
5 converting between a wideband signal and a high sampling rate digital signal,  
under control of a direct memory access controller in communication with a processor,  
storing samples of the high sampling rate digital signal directly into an application memory space  
without interrupting the processor, said application memory space being accessible by a  
computer program;  
10 processing the high sampling rate digital signal samples under control of the computer  
program.
2. The method of claim 1, wherein sampling is continuous.
- 15 3. The method of claim 1, wherein samples are stored at a rate equal to the sampling rate.
4. The method of claim 1, wherein the wideband signal has a bandwidth of 10 MHZ and  
sampling rate is at least 20 mega-samples per second.
- 20 5. The method of claim 1, wherein processing further comprises modulating a signal to the  
digitized IF signal.
6. The method of claim 1, wherein processing further comprises demodulating a signal from  
the digitized IF signal.
- 25 7. The method of claim 1, wherein processing further comprises channel selection.
8. The method of claim 1, wherein storing samples under control of the direct memory  
access controller comprises:

maintaining, in the direct memory access controller, a list of physical page addresses associated with buffers in memory;

reading a page address from the list,

transferring, between an input/output device and memory to which the page address is associated, the high sampling rate digital signal samples; and

repeating continuously the above reading and transferring steps.

9. The method of claim 8, wherein storing samples under control of the direct memory access controller further comprises:

removing the page address from the list; and

providing new page addresses by interrupting the processor when the number of page addresses in the list falls below a predetermined threshold, such that an interrupt handler provides the new page addresses.

10. A method for processing a radio signal, comprising:

converting, in an analog domain, between a radio frequency signal and an analog intermediate frequency signal;

converting between the analog intermediate frequency signal and corresponding digitized intermediate frequency signal data;

buffering the digitized intermediate frequency signal data in a buffer;

under control of a direct memory access controller in communication with a processor, transferring, in page multiples, pages of digitized IF signal data between the buffer and memory without interrupting the processor; and

processing the digitized intermediate frequency signal data in a computer program.